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MQ-8B Fire Scout UAV Manning Cost Benefit Analysis

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EMBA PROJECT REPORT

MQ-8B FIRE SCOUT UAV MANNING COST BENEFIT ANALYSIS

For
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Director PMA-266

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EXECUTIVE SUMMARY

MQ-8B FIRE SCOUT UAV MANNING COST BENEFIT ANALYSIS

At the request of the Intelligence, Surveillance, and Reconnaissance Task Force, the Naval Air Systems Command's program office for Multi-Mission Tactical Unmanned Aerial Systems (UAS)—also known as PMA-266, began MQ-8B flight operations in Afghanistan. Due to the importance and short notice of this request, the initial manning and support measures for the Fire Scout detachment has relied heavily on contractors.

In an effort to refine and redirect the future manning of Fire Scout detachments, PMA-266 asked the Washington DC Naval Postgraduate School Consulting Group to evaluate three different courses of action (COAs) detailing manning options for deployment of the MQ-8B Fire Scout for the next year. The three COAs were:

1) Manning with a military component

2) Manning with NGC contract services

3) Manning through a third party contractor.

This report recommends that PMA-266 use the military component COA to the maximum extent possible. In addition to annual cost savings of over $10M, a military component provides greater mission-focus and flexibility inherent in a military chain of command as compared to a contract manning structure. The Navy would also benefit by obtaining operational UAS experience as it looks to develop an unmanned aviation community. The experience gained could be used to develop Navy instructors for operator and maintenance training instead of continuing to rely on contract support for these requirements.

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LIST OF ACRONYMS AND ABBREVIATIONS

1310	**Naval Aviator Designation**
AC	**Active Duty Component**
AIMD	**Aircraft Intermediate Maintenance Depot**
AOIC	**Assistant Officer in Charge**
AVO	**Air Vehicle Operator**
CENTCOM	**United States Central Command**
COA	**Course of Action**
CONOPS	**Concept of Operations**
DASN	**Deputy Assistant Secretary of the Navy**
DCC	**Washington DC NPS Consulting Group**
Det Kunduz	**Fire Scout Detachment Kunduz, Afghanistan**
FFG 8	**USS MCINERNEY**
FFG 40	**USS HALYBURTON**
FMV	**Full Motion Video**
FY	**Fiscal Year**
HRCAT	**Human Resource Cost Analysis Tool**
IS	**Intelligence Specialist**
ISR	**Intelligence Surveillance and Reconnaissance**
ISR TF	**Intelligence Surveillance and Reconnaissance Task Force**
LCS	**Littoral Combat Ship**
MPO	**Mission Payload Operator**
NAS	**Naval Air Station**
NAVAIR	**Naval Air Systems Command**
NEC	**Naval Enlisted Code**
NGC	**Northrop Grumman Corporation**
NPS	**Naval Postgraduate School**
OCONUS	**Outside the Continental United States**
OEF	**Operation Enduring Freedom**
OIC	**Officer In Charge**
PED	**Processing, Exploitation & Dissemination**
PC	**Plane Captain**
PMA-266	**Program Office for Multi-Mission Tactical Unmanned Aerial Systems Section 266**
QA	**Quality Assurance**
RA	**Reserve Affairs**
RC	**Reserve Component**
SECDEF	**Secretary of Defense**
SOCOM	**United States Special Operations Command**
TBD	**To Be Determined**
UAS	**Unmanned Aerial System**
UAV	**Unmanned Aerial Vehicle**
USN	**United States Navy**
VTUAV	**Vertical Take-off and Landing Unmanned Aerial Vehicle**
YOS	**Years of Service**

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TABLE OF CONTENTS

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I. INTRODUCTION

A. INTRODUCTION

PMA-266 is located at Naval Air Station (NAS) Patuxent River, MD. PMA-266 was established to manage the development, production, fielding, and sustainment of all persistent Vertical Take-off and Landing Unmanned Aerial Vehicle (VTUAV) maritime aircraft systems. The MQ-8B Fire Scout was the VTUAV adopted by PMA-266 and was designed as a complementary intelligence, surveillance, attack, and reconnaissance Unmanned Aerial Vehicle (UAV) for the Littoral Combat Ship (LCS). Since the LCS program has experienced delays in its delivery schedule, naval planners have gone forward with utilizing the MQ-8B on existing surface combatants and on shore detachments. As a result, PMA-266 has supported Fire Scout deployments on the USS MCINERNEY (FFG 8) for counter-drug operations, the USS HALYBURTON (FFG 40) for counter-piracy support, and future deployments are expected.[i]

At the request of the Intelligence, Surveillance, and Reconnaissance Task Force (ISR TF), PMA-266 began support for MQ-8B flight operations in Afghanistan as a part of the MQ-8B's expanded role to support land-based detachments. Due to the importance and short notice of this request, the initial manning and support measures for the Fire Scout detachment relied heavily on Northrop Grumman Corporation (NGC) contractor support and manning[ii]. In an effort to refine and direct the future manning of Fire Scout detachments, this report focuses specifically on reviewing three different COAs detailing how to man MQ-8B Fire Scout deployments in the future.

This report from the NPS DC Consulting Group (DCC) provided PMA-266 with findings and recommendations from a cost benefit analysis of three manning COAs. The results of this

report are designed to aid PMA-266 in determining which course of action best meets the manning requirements for the Fire Scout detachment in Afghanistan.

B. BACKGROUND

In April 2008, the Secretary of Defense (SECDEF) established the ISR TF to generate critical operational ISR capacity in Afghanistan and Iraq. Since its inception, the ISR TF has committed over $5B toward rapid acquisition, fielding, and operational integration of vital ISR capabilities for forces executing operations.

Initially charged with identifying all U.S. military ISR assets worldwide in order to allocate a greater share to US Central Command (CENTCOM), the ISR TF took the initiative and began acquiring and fielding additional ISR capabilities within significantly reduced timelines. While the overarching goal of the ISR TF has remained the same, the primary focus has shifted from identifying inefficiencies within the current ISR asset allocation to the acquisition of new capabilities focusing on rapid fielding, operational integration, and sustainment of new ISR capabilities that can have a direct and immediate impact on combat operations in Iraq and Afghanistan.

ISR TF efforts to date have included significant increases in Full Motion Video (FMV), signals intelligence (SIGINT), processing, exploitation and dissemination (PED), and communications and supporting infrastructure capacity. Most recently, the ISR TF refocused its priority efforts to address ISR shortfalls and the rapid buildup of ISR infrastructure in Afghanistan while sustaining ISR operations in Iraq. In partnership with CENTCOM and US Special Operations Command (SOCOM), the ISR TF addressed a significant number of ISR challenges in support of Operation Enduring Freedom (OEF).[iii]

The MQ-8B Fire Scout is a VTUAV and a U.S. Navy program of record. It is an unmanned helicopter designed to operate aboard a new class of ship, the LCS. Figure 1 shows a picture of the vehicle. The Fire Scout was procured to meet LCS deployments, but delays in the LCS program have yielded an opportunity to utilize the Fire Scout for other tasking until LCS deploys. The ISR TF identified the Fire Scout platform as a possible contributor to closing the FMV ISR gap in remote regions of Afghanistan that are difficult to reach by manned platforms due to the rugged terrain and lack of secure airfields.

In April of 2011, NAVAIR's PMA-266 team deployed a detachment of three Fire Scouts to Kunduz, Afghanistan (Det Kunduz). Because NGC is the primary contractor for the MQ-8B Fire Scout Program, Det Kunduz is predominately manned by NGC. Currently, a combined military and NGC team operate and maintain the vehicles employed at the site at Det Kunduz.

The operational concept for the Fire Scout in support of ISR TF requirements was to provide up to 300 hours per month of FMV support to U.S. and Allied ground forces operating in the vicinity of Kunduz. The detachment started flight operations in early May and was fully operational on 21 May 2011. The detachment flew over 300 hours of mission support in June and well over 300 hours in July, the first two full months of deployed operations. Appendix A provides additional background information about the Fire Scout system and Det Kunduz.

Figure 1. MQ-8B on the Flight Deck of USS Halyburton (FFG 40)[iv]

C. PROJECT OBJECTIVES

The goal of this project was to provide a cost-benefit analysis of three manning options for deployment of the Fire Scout. Analysis of the three options was designed to provide PMA-266 with information that would allow them to select the best solution for future manning requirements.

The evaluated options included: manning with a military component, manning with NGC contract services, and manning with third party contractor service. To determine the advantages and disadvantages of each option, DCC answered the following questions:

1. **What are the total costs and potential benefits of manning Fire Scout deployments with a military component?**

2. **What are the total costs and benefits of manning Fire Scout deployments with NGC contract support?**

3. **What are the costs and potential benefits of third party contract support?**

D. PROJECT SCOPE

DCC's data collection, analysis, and results were focused on meeting the objectives of this project and on providing actionable recommendations for manning MQ-8B Fire Scout deployments. DCC did not analyze the detachment's concept of operations (CONOPS), best practices for employment of the Fire Scout and the breakdown of costs of reserve component personnel. Additionally, providing an implementation plan for any of the manning solutions was beyond the scope of this project.

E. METHODOLOGY

DCC evaluated three COAs which sought to answer certain questions and provide data in order to formulate recommendations for PMA-266. Each COA was thoroughly investigated, analyzed, and summarized using the methods outlined in the following sections, broken down by COA.

1. Military Component Manning (COA 1)

While the current detachment utilizes a combination of military personnel and civilian contractors, COA 1 was designed to address manning Det Kunduz with the

maximum number of military personnel. Once the footprint was determined, the costs associated with manning were broken into two categories: deployment and training. Deployment costs were determined largely through the utilization of the Human Resources Cost Analysis Tool (HRCAT) program.

Assumptions:

To determine first the COA 1 footprint, and later the costs of the COA 1 footprint, DCC made several assumptions:

- Initially an all-military footprint would not be possible to adequately fill the required billets at this time. (Appendix B)
- The estimated costs of manning would be the same whether using active duty component (AC) or reserve component (RC) personnel.[v]
- Theater Boots-on-Ground restrictions would not be a limiting factor for a detachment size of twenty five or fewer military personnel.

Similarly, the HRCAT program operated with its own set of assumptions.

- Years of service (YOS) for each individual were based on the average YOS for that individual's particular pay grade.
- Total costs were provided on an annual basis.
- Only AC personnel were considered.
- All costs were figured in 2009 dollars.
- Personnel costs overseas were based on a generic out of the continental United States (OCONUS) value and were not specific to any specific location.

Data Collection:

To determine the manpower footprint that would be needed for Det Kunduz, DCC examined the existing deployment structure and consulted with the program office for additional information. PMA-266 provided slides that delineated the estimated requirements for the transition of manning from the current footprint toward a more military, less contractor footprint (Appendix C). Phase II of this report was generated with collaboration between PMA-266 and the current detachment leaders in theater and was used as the baseline footprint for Det Kunduz. DCC adjusted this footprint based on recommendations from the client to minimize the number of personnel that would be required to efficiently man Det Kunduz (Appendix D).

Once the COA 1 footprint was established, to estimate deployment costs associated with this footprint, DCC interviewed Lieutenant Colonel Andrew Ryan, Staff Director of Reserve Affairs (RA) for the Deputy Assistant Secretary of the Navy (Reserve Affairs) (DASN (RA)) and Commander Kyle Gatzmeyer, also in RA. They provided basic burdened rates that are used by the Navy in determining manning costs. DCC also contacted Douglas DeVault, a budget analyst for the Chief of Naval Personnel to refine and verify this data. The burdened rates from RA were compared to costs that were calculated using a program, HRCAT, provided by Mr. DeVault. The costs calculated using HRCAT were more accurate because DCC was able to input specific parameters concerning the military billets, such as specialty and pay grade. For this reason, HRCAT was the primary source of costing data provided by DCC.

Deployment costs

The HRCAT program provided a total annual cost based on pay grade, YOS, NEC (enlisted) or designator (officer) and location. Along with the assumptions inherent to HRCAT previously discussed (YOS and location), pay grade selections were made on the established COA 1 footprint. DCC erred on the conservative side when making these selections. (Appendix E)

In addition to being comprised of 20 military personnel, the COA 1 footprint includes four civilian contractors. The deployment costs of these contractors were determined by using data from the existing NGC contract. (Appendix F)

Training Costs

Training for Air Vehicle Operator (AVO) and Mission Payload Operator (MPO) billets is currently conducted at an NGC facility in Hollywood, MD (near NAS Patuxent River, MD). The Navy does not yet have facilities or instructors to conduct training within the service. AVO training is an eight-week syllabus while MPO training is a two-week syllabus. Additionally, vehicle mechanics (airframe and powerplants) training is a five-week syllabus and avionics technicians complete a two-week syllabus. The computed costs of these training programs included the following: salaries during training, travel to the training site, per diem (lodging, meals and incidentals) and instructor costs. In all programs, instructors were assumed to be paid at a rate of $150/hour for a standard eight-hour workday (Appendix G).

The training costs of the four contractors were determined by using data from the existing NGC contract. (Appendix F)

2. Northrop Grumman Manning (COA 2)

For the NGC manning method, PMA-266 provided guidance that the leadership element of the detachment would remain as uniformed military personnel. Therefore, COA 2 still lists the OIC and AOIC as uniformed military and specifically as designated Naval Aviators (1310). Additionally, DCC determined that intelligence support would continue as enlisted Intelligence Specialists (IS). It would have been feasible to contract civilian intelligence analysts but, for the scope of the project, the intel support mirrored the current 5 enlisted person complement.

Assumptions

To determine the total costs of COA 2, the following assumptions were made:

- The contract timeframe would be 1 year.
- The contract would be a Cost Plus Fixed Fee Contract.
- The detachment requires 21 contractors and 7 military personnel, similar to the current footprint.
- Military Intel support would be provided by the Office of Naval Intelligence-Fleet Intelligence Support Team.
- The leadership of the detachment would be uniformed military personnel.
- There would be no cost overruns.
- O&M contract costs included one week of pre-deployment workup pay.
- Reach-back services would be a sunk cost and would be required regardless of whether the operators are military, NGC contractors, or 3rd party contractors.

Data Collection Approach

Although the NGC contract has not been finalized, DCC used the proposal from NGC as the baseline for analyzing COA 2. DCC accomplished the following analyses to determine the cost of manning Det Kunduz with NGC support:

- Examined the costs listed in the current NGC contract.[vi]
    - Coordinated with the program office to obtain a copy of the proposal.
    - Coordinated with NGC and the program office to help translate the data.
    - DCC collaborated with PMA-266 current leaders in theater to determine the proposed footprint of 7 military members and 21 contractors.
- Assessed the current manning structure: Coordinated with the program office to determine the footprint for the military option and contractor option.
- Examined costs associated with the training and work up periods: Obtained training data from contract.
- Examined the costs listed in the current NGC contract.
- Assessed the current manning structure to determine if it was sufficient or excessive based on operations to date.
- Examined costs associated with the training and work up periods.

3. Third Party Contractor Manning (COA 3)

This COA focused on the feasibility of using a third party contracting source to man Fire Scout detachments. NGC would still be involved in the training and support of

the detachment, but would not be the primary source for manning. As with COA 2, detachment leadership and intel support would still be handled by military personnel

Assumptions

- The contract timeframe would be 1 year.
- There would be a total of 21 contractors for a detachment, including NGC and third party contractors.
- The military Intel support would be provided by the Office of Naval Intelligence- Fleet Intelligence Support Team.
- The overall detachment would be lead by uniformed military.
- There would be no cost overruns.
- Any 3rd party contractor can perform same duties as a NGC contractor on the detachment.
- The contract will require on-site support and training from NGC contractors for 3rd party contractors and military

Data Collection Approach

Although the NGC contract has not been finalized, DCC used the proposal from NGC as a baseline for analyzing NGC contractor costs and Cargo UAS and Scan Eagle contracts to estimate 3rd party contractor costs. DCC accomplished the following analyses to determine the cost of manning Det Kunduz with 3rd party contractors and NGC support:

- Examined the costs listed in the current NGC contract.
    - Coordinated with program office to obtain a copy of the proposal.

    - Coordinated with NGC and program office to help translate the data.
    - DCC collaborated with PMA-266 current leaders in theater to determine the proposed footprint of 7 military members and 21 total contractors.

- Used NGC required support in the military option as a baseline of required NGC support for a 3rd party contractor option.
- Used the 3rd party contractor annual rate of $822,000 per contractor from the Cargo UAS contract.
- Assessed the current manning structure: Coordinated with program office to determine footprint for the military option and contractor option.
- Costs associated with the training and work up periods: Obtained training data from contract.

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II. RESULTS

A. MILITARY COMPONENT MANNING (COA 1)

1. Costs

- The optimal manning footprint for the Fire Scout Det Kunduz is 20 military and 4 civilian contractor personnel and is shown in Table 1. Appendix D provides amplifying information with additional stated assumptions.

Table 1 - COA 1 Personnel Composition

Military Personnel (Rank)	Civilian Contractors
1 Officer in Charge/AVO (O-5)	1 Aircraft Mechanic
1 Assistant OIC/MPO (O-4)	1 Avionics Technician
5 Intelligence Specialists (4 E-5, E-6)	1 GCS Technician
2 Air Vehicle Operators (2 O-3)	1 Logs, Records and Supply Technician
2 Mission Payload Operators (2 O-3)	
1 Detachment Chief (E-8)	
2 Quality Assurance Inspectors (E-5, E-6)	
2 Aircraft Mechanics (2 E-5)	
2 Avionics Technicians (2 E-5)	
1 GCS Technician (E-5)	
1 Logs, Records and Supply Technician (E-5)	

- The cost for manning Det Kunduz with military component personnel for one year is $2,234,707.
- The cost for additional contractor support at Det Kunduz for one year is $2,844,684.
- The total military and civilian training costs enroute to Det Kunduz for one year are $460,095.
- DCC determined the total costs associated with manning and training this detachment for one year at Det Kunduz to be $5,539,485.

2. Qualitative Observations

While the monetary costs played a significant role in determining the best way ahead, other factors also impacted the suitability of the military component COA. These qualitative factors were considered along with the financial data already discussed.

Advantages

- The military chain of command structure would govern under COA 1. Fewer civilians in theater would likely present fewer conflicts between the needs and desires of the Navy and the needs and desires of the civilian's company.
- The current detachment has cited difficulties with civilians trying to interact with other military components on the base. A mostly-military footprint would prevent these issues.
- Utilizing COA 1 would create and retain valuable skills that will likely be required by the Navy for years to come. Retaining these skills within the Navy will likely reduce turnover challenges and increase the implementation of lessons learned. Additionally, future dependence on contractors will be reduced.
- COA 1 would provide military experience necessary to implement and sustain Navy record-keeping procedures and other administrative needs.
- The COA 1 structure may allow for future combination of duties to further reduce costs by reducing the number of required personnel.
- The implementation of COA 1 would likely influence the conversion of AVO and MPO training from civilian to military.

Disadvantages

- Utilization of COA 1 increases the overall risk associated with the implementation and sustainment of an advanced technical support detachment. By utilizing more civilians, the program becomes easier and cheaper to terminate if no longer desired in the future.
- Initial training of instructors will take time before the Navy can fully take over for NGC.
- Fiscal Year (FY) 13, or a best case of mid FY 12, can be expected for the Navy to take over MPO training completely.
- FY 14 is the estimate for the Navy to fully take over AVO training.

B. NORTHROP GRUMMAN MANNING (COA 2)

1. Costs

- The optimal NGC manning footprint for the Fire Scout Det Kunduz is 7 military and 21 civilian contractor personnel as shown in Table 2.

Table 2 - COA 2 Personnel Composition (Currently in Place)

Military Personnel (7)	NGC Contractors (21)
• 1 Officer in Charge	• 3 Air Vehicle Operator
• 1 Assistant OIC	• 1 Mechanic/Plane Captain
• 5 Intelligence Specialists	• 3 Mission Payload Operator
	• 1 Mechanic/Plane Captain
	• 2 Quality Assurance Inspector
	• 3 Aircraft Mechanic
	• 2 Avionics Technician
	• 2 GCS Technician
	• 2 Logs, Records and Supply Technician
	• 1 Maintenance Manager

- The cost for manning Det Kunduz with NGC contractors for one year is $14,934,591.
- The cost to provide Det Kunduz with military leadership and intel support elements for one year is $687,077.
- The total military and civilian training costs enroute to Det Kunduz for one year are $361,337.
- DCC determined the total costs associated with manning and training this detachment for one year at Det Kunduz to be $15,983,005.[vii]

2. Qualitative Observations

While the monetary costs played a significant role in determining the best way ahead, other factors also impacted the suitability of the military component COA. These qualitative factors were considered along with the financial data already discussed.

Advantages

- Higher technical expertise: Technicians sent by the contractors would potentially have much more training and experience in the field than the two-week and six-week training courses to which Navy personnel are sent.
- If licensed FAA-licensed Airframe & Powerplants qualified personnel are used, they would possess a wider range of expertise and technical background, which could lead to a smaller footprint by using personnel that are cross-trained.
- NGC technicians may be able to perform some AIMD and depot level maintenance on site.

Disadvantages

- Significantly more expensive.
- Harder to capture lessons learned.
- Differences in maintenance and equipment status reporting for the chain of command. Reporting format and method is NGC standard not Navy standard.
- Existing detachment has observed issues with contractors not following expected uniform or conduct regulations.
- Existing issues with deployed contractors wanting to take leave and little support for backfills.
- Changes in the deployment infrastructure may affect the contracting costs. For example, changes in the base security contract caused insurance rates to increase for NGC; therefore, fees increased for using contractors.
- Contractors only perform work as outlined in their contract. They may be unwilling or unable to assist in base operations or with other tasks not specified in the contract.
- The USN is better at conducting operations than writing contracts; therefore, a poorly written contract may present limitations in mission accomplishment.
- Unit cohesion is not as prevalent with contractors.

C. THIRD PARTY MANNING (COA 3)

1. Costs

- The optimal third party contractor manning footprint for the Fire Scout Det Kunduz is 7 military and 21 civilian contractor personnel as shown in Table 3.

Table 3 - COA 3 Personnel Composition

Military Personnel (7)

- 1 Officer in Charge
- 1 Assistant OIC
- 5 Intelligence Specialists

NGC Contractors (8)

- 1 Air Vehicle Operator
- 1 Mission Payload Operator
- 1 Quality Assurance Inspector
- 1 Aircraft Mechanic/Plane Captain
- 1 Avionics Technician/Plane Captain
- 1 GCS Technician
- 1 Logs, Records and Supply Technician
- 1 Maintenance Manager

3rd Party Contractors (13)

- 2 Air Vehicle Operator
- 2 Mission Payload Operator
- 1 Quality Assurance Inspector
- 2 Aircraft Mechanic
- 2 Avionics Technician
- 1 Avionics/Plane Captain
- 1 GCS Technician
- 1 Logs, Records and Supply Technician
- 1 Maintenance Manager

- The cost for manning Det Kunduz with third party contractors for one year is $10,686,000.
- The cost for manning Det Kunduz with NGC contractors for one year is $5,689,368.
- The cost to provide Det Kunduz with military leadership and intel support elements for one year is $687,077.
- The total military and civilian training costs enroute to Det Kunduz for one year are $486,713.
- DCC determined the total costs associated with manning and training this detachment for one year at Det Kunduz to be: $17,549,158.

2. Qualitative Observations

While the monetary costs played a significant role in determining the best way ahead, other factors also impacted the suitability of the military component COA. These qualitative factors were considered along with the financial data already discussed.

Advantages

- NGC typically has not provided long-term manning solutions; it has not been their core business.
- NGC would not have to pull trainers to support deployments

Disadvantages

- Increasingly difficult to capture lessons learned between 3rd party contractor, NGC, and military personnel.
- Maintenance and equipment status reporting would become more difficult for the chain of command to access. Reporting format and method is NGC standard not Navy standard. Further complicated by 3rd party interaction.
- As previously established, the Navy is better at conducting operations than writing contracts; therefore, having two different contracts with two companies which need to be partners adds an additional risk at being able to accomplish the mission.

Summary

Figure 2 and Table 4 on the next page provide a summary of results by COA for comparison. These products provide a graphical and tabular overview of cost data.

Figure 2 - Summary of Manning Costs

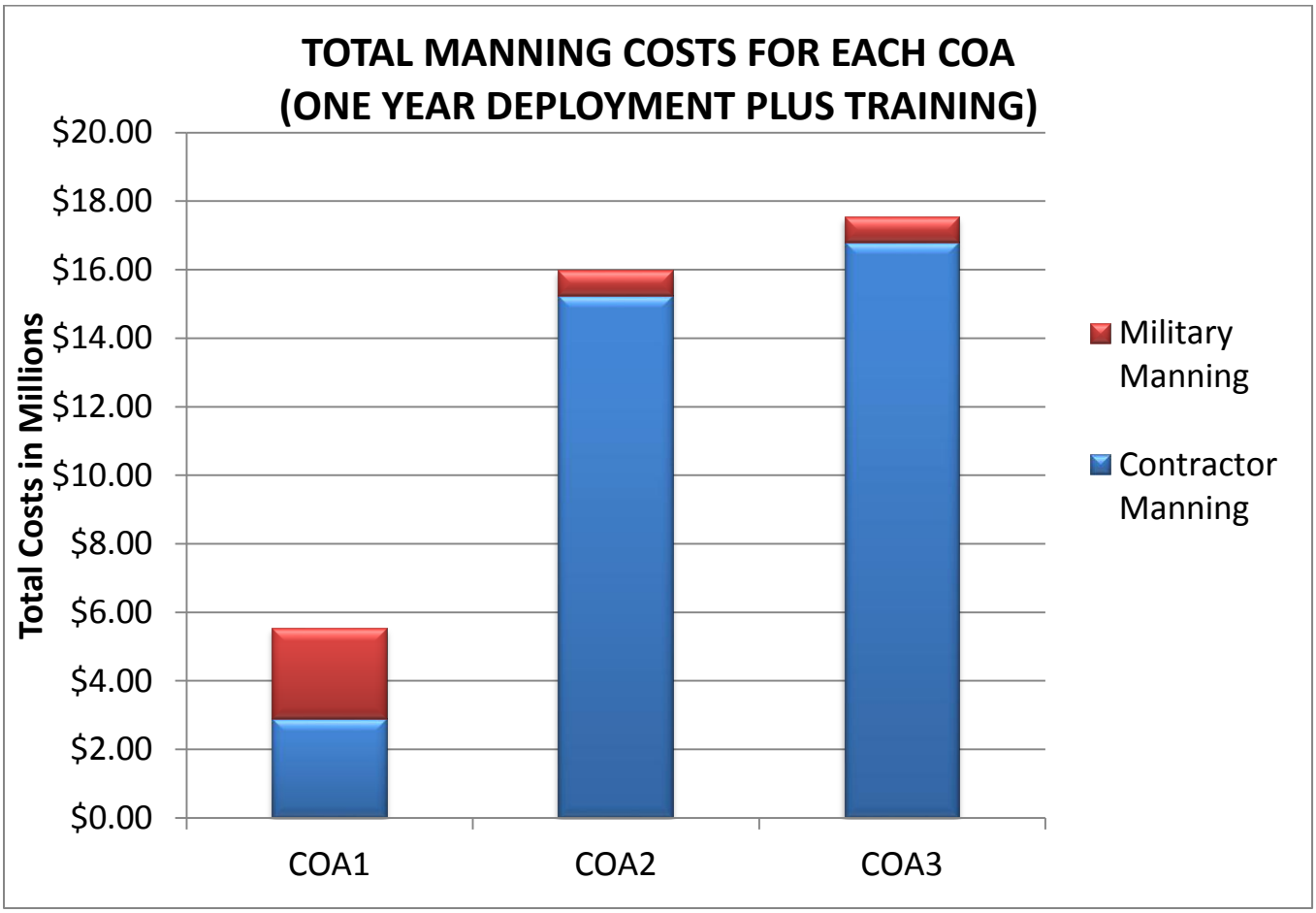

Table 4 - Footprint and Cost by COA

Option	# MILPERS	# CIVPERS	# Total PERS	Tot MIL $	Tot CIV $	Tot TRNG $	Tot $ for CY
COA 1	20	4	24	$2.24M	$2.84M	$460K	$5.54M
COA 2	7	21	28	$687K	$14.9M	$361K	$15.9M
COA 3	7	21	28	$687K	$16.4M	$486K	$17.6M

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III. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

1. Military Component Manning (COA 1)

Cost:

Considering total manning costs, COA 1 would be the most cost effective solution. COA 1 provides a total cost savings of $10 million compared to COA 2 and a savings of $12 million when compared to COA 3. Training costs for COA 2 are slightly ($100K) lower and offer the only cost advantage versus COA 1. However those savings are insignificant when manpower costs are compared.

All costs would be incurred on an annual basis. Personnel costs are unavoidable and necessary for the detachment to function. Training costs would likewise be a recurring cost for all COAs in the short term. Some savings could be realized if personnel are redeployed, but those savings would be small—training costs are less than 10% of total costs.

Technical:

For the term of the proposed contract, COA 1 would provide less capability than COA 2. COA 1 requires training of military personnel to work on a platform that is new to them. Although military personnel would go through training provided by NGC, the shared expertise would not be as strong as using COA 2. The technical capabilities would be similar to those of a COA 3 manning force, which would also have to go through a similar training pipeline.

Organizational Structure:

There are many benefits of having primarily a military chain of command. The mission would not be limited by the bounds of a contract. In addition, the footprint would be smaller with only 24 personnel vice 28. The military personnel would gain UAS experience that could be leveraged as the Navy looks to expand the use of unmanned systems in its core mission sets.

2. Northrop Grumman Manning (COA 2)

Cost:

The total manning costs of COA 2 is significantly higher than the COA 1 solution. COA 2 is $10 million more expensive than COA 1, but $1.7 million more cost-effective than COA 3. Training costs are $98,757 less expensive for COA 2 and $125,376 less expensive than COA 3.

Technical:

COA 2 would provide the most technical expertise to the detachment. Since NGC is the primary contractor, they have resources and personal experience that neither current Navy manning nor a third party contractor can provide.

Organizational Structure:

For example, issues have arisen from contractors performing all mission and maintenance functions. A ground control station was allowed to remain in a down status for months since the other one was functioning adequately. This would not have been acceptable for Navy maintenance reporting procedures. Additionally, reports from Det Kunduz and PMA-266 indicated that preventative maintenance on support equipment

was not being completed and logged appropriately. This culminated in frequent problems with detachment air conditioning and electrical generator systems.

3. Third Party Manning (COA 3)

Cost:

The total manning costs of COA 3 make it the most expensive option. Total costs for third party contract support is over three times the cost of the military component option. This COA does not provide any area of cost-savings and is over 10% more expensive than the NGC option.

Technical:

Technical capabilities for COA 3 would be similar to those of a COA 1 manning force, which would also have to go through a similar training pipeline. COA 3 requires training of military and civilian personnel to work on a platform that is new to them, and the shared expertise of the NGC personnel in COA 2 would be lost.

Organizational Structure:

DCC expects that using COA 3 would create the highest potential for confusion with a chain of command since there would be a hybrid of personnel including military, NGC contractors, and a third party. In addition, the contracts between contracting companies may be different and potentially may lead to more conflicts between personnel in these organizations.

B. RECOMMENDATIONS

DCC recommends using COA 1 (Military Component) as the manning option for MQ-8B flight operations in Afghanistan. COA 1 is the most cost effective option, providing over $10M in savings when compared to the more expensive contractor manning options. In addition, a predominantly military detachment provides numerous benefits such as:

- Military personnel support only the mission from chain of command—contractors support mission and company
- Provides Navy personnel with UAS experience base
- Greater flexibility—surge beyond contract specifications as needed

C. AREAS FOR FURTHER STUDY

Though beyond the scope of this project, DCC Consulting encountered numerous related issues and would recommend the following issues below for further study and consideration:

1. Personnel Sourcing:

PMA-266 should evaluate the use of a reservist detachment augmented by an active duty component. Both reserve and active duty career paths should be considered as the Navy takes steps to establish a UAV community and associated career path. The UAV community could then directly detail members under Permanent Change of Station orders versus short to no-notice Individual Augmentation orders. Also, a pipeline could be created as a means to generate and maintain corporate knowledge of the Fire Scout for best practices in training, operations and maintenance.

2. Footprint:

Using designated aviators to operate the Fires Scout is one option. Switching to enlisted AVOs and MPOs may be a means of establishing a more cost-effective method of operating an

unmanned aircraft. Other communities are already using enlisted personnel to operate unmanned systems.

Another recommendation regarding detachment footprint would be to evaluate what operational, intelligence, and maintenance resources would be necessary to increase mission support beyond 300 hours per month. PMA-266 and Det Kunduz have already indicated that the demand for more capacity exists.

3. Ship Applications:

The lack of skill sets by uniformed IT professionals in the Navy precipitates the use of NGC and third party contractors to provide this support in the near-term. The Navy should analyze methods to close the skills gap in for maintenance of UAS Ground Control Stations by active duty Navy personnel. This would require proficiency in hardware, software, and networking to ensure proper function of the system.

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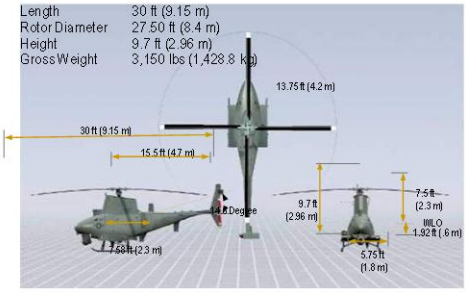
APPENDIX A: MQ-8B PROGRAM DESCRIPTION

Navy Fire Scout VTUAV Program Description

- Mission: The Fire Scout VTUAV system is designed to provide intelligence, surveillance, reconnaissance, and targeting data to tactical users
- Platforms: Designed to operate from all Air Capable Ships
- Description: A typical Fire Scout System consists of:
  - 1-3 MQ-8B Fire Scout air vehicles equipped with Brite Star II (EO/IR)
  - Ground Control Station (integrated in ship CIC) incorporating the Tactical Control System (TCS), Tactical Common DataLink (TCDL), and Unmanned Common Automatic Recovery System (UCARS)
- Employment: The Fire Scout was fielded on the USS *McInerney*, (FFG 8) as a Military Utility Assessment (MUA) event and deployed on USS *Halyburton* (FFG 40). And soon with Littoral Combat Ships.

Length	30 ft (9.15 m)
Rotor Diameter	27.50 ft (8.4 m)
Height	9.7 ft (2.96 m)
Gross Weight	3,150 lbs (1,428.8 kg)



Training Plan HSL 60

AVO

Total Classroom Time: 225+
Total Simulator Time: 25+
Total MQ Flight Time: 5+

Deployment Ready
Classroom = 200 hrs
Simulator = 25 hrs
Flights = 5

TBD

Delta Training/Proficiency Final Increment (if needed)
Classroom = 25 hrs
Simulator = 4 hrs
Flight = Repeat AVO 1

Flight Training
Flight = 5 syllabus events
(2 UCARS)
(3 Non-UCARS last is NATOPS Check)

1 week
29 Aug – 2 Sep
or 19 – 23 Sep

VTUAV AVO Training
Classroom = 200 hrs
Simulator = 25 hrs
Conditional Qualification
Pending Flight Evaluation

5 weeks
1 – 26 Aug

TIME

MPO

Total Classroom Time: 80+
Total Simulator Time: 10+
Total MQ Flight Time: 5+

Deployment Ready
Classroom = 80 hrs
Simulator = 12 hrs

TBD

Delta Training/Proficiency Final Increment (if needed)
Classroom = 8 hrs
Simulator = 4 hrs
Flight = Repeat AVO 1 (CRM)

VTUAV MPO Training
Classroom = 80 hrs
Simulator = 12 hrs
Conditional Qualification
Pending Flight Evaluation

2 weeks
15 – 26 Aug

TIME

PROFICIENCY LEVEL

HSL Training

- AVO - 4 weeks of classroom/simulators and 5 flight events (total training duration subject to aircraft availability)
- MPO - 2 weeks of classroom/simulators which does not require flights
- Mechanical Maintenance course (Mech) - 5 weeks with an operational aircraft for the last week for engine turns
- Avionics Maintenance course (Tech) - 1 week of classroom, 1 week of training on an operational aircraft, 1 week of Shipboard Control Station training

HSL Training Status

- Final Check-ride Complete
- 9.1 Inc Training Complete
- Basic Training Complete
- Not trained yet

AVO

Person	Background	S	PRD
Darrel Capo			
Jeremy DeYoung			
John Honeman			
Chris Hinkle			

MPO1

Person	Background		PRD
David Berber			
Josh Surratt			
???			

Maintenance

Person	Position	S	PRD
Ronald Baker	CPO; Mech Training		
Joseph Ordonez	Backup CPO; Tech Training		
Charles Conley	Tech Training		
Brian Eastridge	Tech Training		
Michael Erminger	Tech Training		
Jeremy Herrmann	Tech Training		
Ben Cooper	Tech Training		
Paul Sinerco	Tech Training		
John Hookey	Tech Training		
Jonathan Moody	Mech Training		
Paul Rybolt	Mech Training		
David Magnus	Mech Training		
Samuel Lancaster	Mech Training		
Lee Belt	Mech Training		
Ronald Dixon	Mech Training		
James Thomas	Mech Training		

HSL Maintenance Training Plan

- **HSL Maintenance Quals**
  - Initial Classroom & Lab Training in August/September
  - Turn Qual & Plane Captain PQS must be completed and signed off within HSL 60
  - CDI/QAR PQS must be completed and signed off within HSL 60
  - HSL 60 turn Qual proficiency can be maintained while underway and in Mayport once aircraft are assigned to the det.
  - Turn Qual not required for all maintainers.

- **NEC's achieved at the completion of training**
  - Tech Course (CIN# C-690-0036) (3 Weeks in Length)
  - Mech Course (CIN# C-690-0037) (5 Weeks in Length)

ISR TF Afghanistan Mission

- **To provide 300 hours of Full Motion Video in the CENTCOM AOR supporting US Army and Coalition Forces**

- **Government Owned, Contractor Operated Structure**
  - Hardware
    - 3 Aircraft, 2 GCS, PUK, Shelter
  - Personnel
    - 26 Contractors and 7 Military
  - Location
    - Afghanistan

APPENDIX B: INTERVIEW QUESTIONS

The following topics were discussed during interviews that were used to gather information regarding manning for Fire Scout detachments:

- Minimum required personnel to support operations
- Advantages and disadvantages of military versus contractor detachments
- Minimum requirements for military and contractor required functions
- Methods of sourcing requirements with reservists
- Training requirements and duration
- Are there any barriers to success for any of the 3 COAs?

These topics were discussed with the following stakeholders:

- Current detachment leadership
- PMA-266
- ISR TF
- NAVAIR contracting experts
- Naval Reserve policy experts

APPENDIX C: FIRE SCOUT MANNING PHASE PLAN

Phase 1: Current GO/CO Deployment Manning Composition

(as delineated by SOW dated 07MAR2011)

Military	
OIC/Mission Commander (O-4/5)	1
AOIC/Mission Commander (E-7/8/9 or O-3/4)	1
Intelligence Specialist (E-4/5/6)	5
Contractor	
Site Lead	1
Operations Engineer	1
Air Vehicle Operator	3
Mission Payload Operator	3
Plane Captain	3
QA	2
Mech (AM/AD)	3
Tech (AE/AT)	3
GCS Technician	2
Logs & Records/Supply (AZ/LS)	1
Logistics Data Recording	1
Total	**30**

UNCLASSIFIED/FOUO

Overview Of Manning Transition From GO/CO To GO/GO

Military	**Military Equivalent**
OIC/Mission Commander (O-4/5)	no change
AOIC/Mission Commander (E-7/8/9 or O-3/4)	no change
Intelligence Specialist (E-4/5/6)	no change
Contractor	
Site Lead	(E-7/8/9)
Operations Engineer	no replacement
Air Vehicle Operator	no change
Mission Payload Operator	no change
Plane Captain	(E-3/4/5)
QA	(E-5/6)
Mech (AM/AD)	(E-4/5/6)
Tech (AE/AT)	(E-4/5/6)
GCS Tech (AE/AT)	(E-4/5/6)
Logs & Records/Supply (AZ/LS)	(E-4/5/6)

UNCLASSIFIED/FOUO

Phase 2: Proposed Infusion Of Military Personnel For GO/CO Deployment

Military/Northrup Grumman Personnel	
OIC/Mission Commander (O-4/5)	1
AOIC/Mission Commander (O-3/4)	1
Intelligence Specialist (E-4/5/6)	5
Air Vehicle Operator (O-3/4/5) + one NGC	3
Mission Payload Operator (O-2/3/4) + one NGC	3
Det Chief (E-7/8/9)	1
Plane Captain (E-3/4/5) + one NGC	3
QA (E-5/6) + one NGC	2
Mech (AM/AD; E-4/5/6) + one NGC	3
Tech (AE/AT; E-4/5/6) + one NGC	3
GCS Tech (AE/AT; E-4/5/6) + one NGC	2
Logs & Records/Supply (AZ/LS; E-4/5/6) + one NGC	2
Total	**29**

Note 1: Military/Contractor ratio = 21/8
Note 2: AOIC/Mission Commander becomes restricted to officer due to AVO/MPO status.
Note 3: Plane Captain positions can be absorbed by other maintenance personnel.

UNCLASSIFIED/FOUO

Phase 3: Complete Transition to GO/GO Deployment

Military	
OIC/Mission Commander (O-4/5)	1
AOIC/Mission Commander (O-3/4)	1
Intelligence Specialist (E-4/5/6)	5
Air Vehicle Operator (O-3/4/5)	4
Mission Payload Operator (O-2/3/4)	3
Det Chief (E-7/8/9)	1
Plane Captain (E-3/4/5)	3
QA (E-5/6)	2
Mech (AM/AD; E-4/5/6)	3
Tech (AE/AT; E-4/5/6)	4
Logs & Records/Supply (AZ/LS; E-4/5/6)	2
Total	**29**

Note 1: Total personnel could be reduced by two if OIC & AOIC fully-trained for AVO/MPO
Note 2: Total personnel could be reduced by three with Plane Captain duties absorbed by other maintenance personnel

UNCLASSIFIED/FOUO

APPENDIX D: PROPOSED MILITARY COMPONENT FOOTPRINT

Military Personnel (Rank)

- 1 Officer in Charge/AVO (O5)
- 1 Assistant OIC/MPO (O4)
- 5 Intelligence Specialists (4xE5, E6)
- 2 Air Vehicle Operators (2xO3)
- 2 Mission Payload Operators (2xO3)
- 1 Detachment Chief (E8)
- 2 Quality Assurance Inspector (E5, E6)
- 2 Aircraft Mechanics (2xE5)
- 2 Avionics Technicians (2xE5)
- 1 GCS Technician (E5)
- 1 Logs, Records and Supply Technician (E5)

Civilian Contractors

- 1 Aircraft Mechanic
- 1 Avionics Technician
- 1 GCS Technician
- 1 Logs, Records and Supply Technician

DCC made assumptions regarding the best make up of ratings and ranks for the detachment. In cases where the rank did not matter, i.e. the difference between an E-4 and E-5 Intelligence Specialist, the higher rank/cost was chosen to show the highest likely cost of the COA.

- The OIC was combined with one of the PMA-266-requested AVO billets to reduce the number of personnel required.
- The AOIC was combined with one of the PMA-266-requested MPO billets to reduce the number of personnel required.
- All contractor billets were converted to military billets as DON was able to fulfill. Mechs, Techs, GCS Techs, and logs and records required at least 1 NGC contractor to ensure NGC representation. Also, DON would not initially have the capability to completely take over these billets.
- The command rank structure was determined as a representative chain of command. E-5 was chosen as the main enlisted rank because of the time required to train and prepare Intel Specialists for a detachment. The norm would be that an IS would reach E-5 prior to being fully operationally ready. Also, E-5 was a cost wise average of the enlisted ranks requested by PMA-266, and fit into the rank structure that included a Det Chief.

APPENDIX E: HRCAT DATA SOURCE FOR COA 1

	Military Pay Type	Annual
MPN	Base Pay	$92,376.00
MPN	Retired Pay Accrual (RPA)	$27,158.54
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$122.00
MPN	Overseas Station Allowances	$16,802.00
MPN	Social Security (Employer)	$5,727.31
MPN	Medicare (Employer)	$1,339.45
MPN	Aviation Career Incentive Pay	$10,080.00
MPN	Basic Allowances for Subsistence (BAS)	$2,676.48
MPN	Hazardous Duty Incentive Pay (Other)	$91.00
MPN	Miscellaneous	$702.21
MPN	PCS	$5,123.00
MPN	Special Pay: Other	$288.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$2,058.70

Grade: O-5
YOS: 20 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
Designator: 131x - An Unrestricted Line Officer who is qualified for duty involving flying heavier-than-air, or heavier and lighter-than-air type aircraft as a pilot.
SubSpec: None

Military Annual (MPN): $162,485.99

Military Annual (Total): $170,104.69

	Military Pay Type	Annual
MPN	Base Pay	$78,396.00
MPN	Retired Pay Accrual (RPA)	$23,048.42
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$122.00
MPN	Overseas Station Allowances	$16,802.00
MPN	Social Security (Employer)	$4,860.55
MPN	Medicare (Employer)	$1,136.74
MPN	Aviation Career Continuation Pay	$25,000.00
MPN	Aviation Career Incentive Pay	$7,800.00
MPN	Basic Allowances for Subsistence (BAS)	$2,676.48
MPN	Hazardous Duty Incentive Pay (Other)	$91.00
MPN	Miscellaneous	$702.21
MPN	PCS	$5,123.00
MPN	Special Pay: Other	$288.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$2,058.70

Grade: O-4
YOS: 14 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
Designator: 131x - An Unrestricted Line Officer who is qualified for duty involving flying heavier-than-air, or heavier and lighter-than-air type aircraft as a pilot.
SubSpec: None

Military Annual (MPN): $166,046.40

Military Annual (Total): $173,665.10

	Military Pay Type	Annual
MPN	Base Pay	$39,192.00
MPN	Retired Pay Accrual (RPA)	$11,522.45
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MPN	Overseas Station Allowances	$8,268.00
MPN	Social Security (Employer)	$2,429.90
MPN	Medicare (Employer)	$568.28
MPN	Basic Allowances for Subsistence (BAS)	$3,886.44
MPN	Hazardous Duty Incentive Pay (Other)	$115.00
MPN	Miscellaneous	$1,718.85
MPN	PCS	$1,824.00
MPN	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-6
YOS: 14 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Cryptology/Intelligence - Intelligence Specialist (B600)
NEC: None

Military Annual (MPN): $70,257.92

Military Annual (Total): $76,649.57

	Military Pay Type	Annual
MPN	Base Pay	$31,908.00
MPN	Retired Pay Accrual (RPA)	$9,380.95
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MPN	Overseas Station Allowances	$8,268.00
MPN	Social Security (Employer)	$1,978.30
MPN	Medicare (Employer)	$462.67
MPN	Basic Allowances for Subsistence (BAS)	$3,886.44
MPN	Hazardous Duty Incentive Pay (Other)	$115.00
MPN	Miscellaneous	$1,718.85
MPN	PCS	$1,824.00
MPN	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-5
YOS: 8 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Cryptology/Intelligence - Intelligence Specialist (B600)
NEC: None

Military Annual (MPN): $60,275.21

Military Annual (Total): $66,666.86

	Military Pay Type	Annual
MPN	Base Pay	$62,364.00
MPN	Retired Pay Accrual (RPA)	$18,335.02
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$122.00
MPN	Overseas Station Allowances	$16,802.00
MPN	Social Security (Employer)	$3,866.57
MPN	Medicare (Employer)	$904.28
MPN	Aviation Career Incentive Pay	$7,800.00
MPN	Basic Allowances for Subsistence (BAS)	$2,676.48
MPN	Hazardous Duty Incentive Pay (Other)	$91.00
MPN	Miscellaneous	$702.21
MPN	PCS	$5,123.00
MPN	Special Pay: Other	$288.00
OTHR	Training Costs (Accession)	$20,340.48
OTHR	Training Costs (Flight)	$78,100.30
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$2,058.70

Grade: O-3
YOS: 8 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
Designator: 131x - An Unrestricted Line Officer who is qualified for duty involving flying heavier-than-air type aircraft as a pilot.
SubSpec: None

Military Annual (MPN): $119,074.56

Military Annual (Total): $225,134.04

	Military Pay Type	Annual
MPN	Base Pay	$53,688.00
MPN	Retired Pay Accrual (RPA)	$15,784.27
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MPN	Overseas Station Allowances	$8,268.00
MPN	Social Security (Employer)	$3,328.66
MPN	Medicare (Employer)	$778.48
MPN	Basic Allowances for Subsistence (BAS)	$3,886.44
MPN	Hazardous Duty Incentive Pay (Other)	$115.00
MPN	Miscellaneous	$1,718.85
MPN	PCS	$1,824.00
MPN	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-8
YOS: 21 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Aviation Mechanical - Aviation Machinist's Mate (A110)
NEC: None

Military Annual (MPN): $90,124.70

Military Annual (Total): $96,516.35

	Military Pay Type	Annual
MPN	Base Pay	$39,192.00
MPN	Retired Pay Accrual (RPA)	$11,522.45
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MPN	Overseas Station Allowances	$8,268.00
MPN	Social Security (Employer)	$2,429.90
MPN	Medicare (Employer)	$568.28
MPN	Basic Allowances for Subsistence (BAS)	$3,886.44
MPN	Hazardous Duty Incentive Pay (Other)	$115.00
MPN	Miscellaneous	$1,718.85
MPN	PCS	$1,824.00
MPN	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-6
YOS: 14 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Aviation Technical - Aviation Electronics Technician (A210)
NEC: None

Military Annual (MPN): $70,257.92

Military Annual (Total): $76,649.57

	Military Pay Type	Annual
MPN	Base Pay	$31,908.00
MPN	Retired Pay Accrual (RPA)	$9,380.95
MPN	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MPN	Overseas Station Allowances	$8,268.00
MPN	Social Security (Employer)	$1,978.30
MPN	Medicare (Employer)	$462.67
MPN	Basic Allowances for Subsistence (BAS)	$3,886.44
MPN	Hazardous Duty Incentive Pay (Other)	$115.00
MPN	Miscellaneous	$1,718.85
MPN	PCS	$1,824.00
MPN	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-5
YOS: 8 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Aviation Mechanical - Aviation Structural Mechanic (A130)
NEC: None

Military Annual (MPN): $60,275.21

Military Annual (Total): $66,666.86

	Military Pay Type	Annual
MTH	Base Pay	$31,908.00
MTH	Retired Pay Accrual (RPA)	$9,380.95
MTH	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MTH	Overseas Station Allowances	$8,268.00
MTH	Social Security (Employer)	$1,978.30
MTH	Medicare (Employer)	$462.67
MTH	Basic Allowances for Subsistence (BAS)	$3,886.44
MTH	Hazardous Duty Incentive Pay (Other)	$115.00
MTH	Miscellaneous	$1,718.85
MTH	PCS	$1,824.00
MTH	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-5
YOS: 8 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Surface Operations - Information Systems Technician (B460)
NEC: None

Military Annual (MPN): $60,275.21

Military Annual (Total): $66,666.86

	Military Pay Type	Annual
MTH	Base Pay	$31,908.00
MTH	Retired Pay Accrual (RPA)	$9,380.95
MTH	In-Place Consecutive Overseas Tour (IPCOT) & Overseas Tour Extension Incentive Program (OTEIP)	$185.00
MTH	Overseas Station Allowances	$8,268.00
MTH	Social Security (Employer)	$1,978.30
MTH	Medicare (Employer)	$462.67
MTH	Basic Allowances for Subsistence (BAS)	$3,886.44
MTH	Hazardous Duty Incentive Pay (Other)	$115.00
MTH	Miscellaneous	$1,718.85
MTH	PCS	$1,824.00
MTH	Special Pay: Other	$548.00
OTHR	Health Benefit	$5,560.00
OTHR	Recruiting Costs	$831.65

Grade: E-5
YOS: 8 Year(s) of Service.
Locality: OO - OCONUS (Overseas Standard)
Dependents (BAH): With Dependents
ENC: Aviation Technical - Aerographer's Mate (A410)
NEC: None

Military Annual (MPN): $60,275.21

Military Annual (Total): $66,666.86

APPENDIX F: COA 1 MANNING COSTS

COA 1							
Personnel	Rate/Desig	Quantity		Military Personnel Cost	Contractor Costs	Military Training	Contractor Training
		Mil	Cont				
OIC/AVO (O-5)	1310	1		$170,105			
AOIC/MPO (O-4)	1310	1		$173,665			
Intelligence Specialist (4xE5, 1xE6)	Intel	5		$343,317			
Air Vehicle Operator (2xO-3)	1310	2		$448,268			
Mission Payload Operator (2xO-3)	1310	2		$448,268			
Det Chief (E-8)	AM	1		$96,516			
QA (1xE5, 1xE6)	AD, AT	2		$154,566			
Mech (2xE5) + one NGC	AM, AD	2	1	$133,334	$711,171		$14,572
Tech (2xE5)+ one NGC	AE, AT	2	1	$133,334	$711,171		$14,572
GCS Tech (1xE5)+ one NGC	IT	1	1	$66,667	$711,171		$14,572
Logs & Records/Supply (1xE5) + one NGC	AZ	1	1	$66,667	$711,171		$14,572
Total		**20**	**4**	**$2,234,707**	**$2,844,684**	**$401,805**	**$58,290**
COA 1 TOTAL COST	**$5,079,391**						

APPENDIX G: FIRE SCOUT TRAINING COSTS

AVO - 6 weeks	O5	O3	O3	Total
Salary (2mos.)	$30,126	$38,476	$38,476	$107,077
Travel	$500	$500	$500	$1,500
Per Diem	$6,846	$6,846	$6,846	$20,538
Instructor	$72,000/class (150/hr, 40 hour wk, 2 instr)			$72,000
MPO - 2 weeks	O5	O3	O3	Total
Salary (1 mos.)	$15,063	$19,238	$19,238	$53,539
Travel	$500	$500	$500	$1,500
Per Diem	$2,282	$2,282	$2,282	$6,846
Instructor	$12,000/class			$12,000
Mech - 5 weeks	E6	E5	E5	Total
Salary (2 mos.)	$13,827	$12,576	$12,576	$38,979
Travel	$500	$500	$500	$1,500
Per Diem	$5,705	$5,705	$5,705	$17,115
Instructor	$30,000/class			$30,000
Avionics Tech - 2 weeks	E5	E5	E5	Total
Salary (1 mo.)	$6,288	$6,288	$6,288	$18,864
Travel	$500	$500	$500	$1,500
Per Diem	$2,282	$2,282	$2,282	$6,846
Instructor	$12,000/class			$12,000
			TOTAL	**$401,805**

APPENDIX H: COA 2 AND COA 3 MANNING COST

COA 2

Personnel	Quantity						
	Mil	Cont	Military Personnel Cost	Contractor Cost (1 year)	Military Training Cost	Contractor Training Cost	Total Cost
OIC/Mission Commander (O-4/5)	1		$170,105		$37,472		$207,577
AOIC/Mission Commander (O-3/4)	1		$173,655		$17,845		$191,500
Intelligence Specialist (4XE-5, 1XE6)	5		$343,317				$343,317
Air Vehicle Operator	0	3		$2,133,513		$43,717	$2,177,230
Mission Payload Operator	0	3		$2,133,513		$43,717	$2,177,230
Maintenance Manager	0	1		$711,171		$14,572	$725,743
Plane Captain/ Mechanic	0	1		$711,171		$14,572	$725,743
QA	0	2		$1,422,342		$29,145	$1,451,487
Mechanic	0	3		$2,133,513		$43,717	$2,177,230
Avionics	0	3		$2,133,513		$43,717	$2,177,230
Avionics/Plane Captain	0	1		$711,171		$14,572	$725,743
GCS Tech	0	2		$1,422,342		$29,145	$1,451,487
Logs & Records/Supply	0	2		$1,422,342		$29,145	$1,451,487
Total	**7**	**21**	**$687,077**	**$14,934,591**	**$55,317**	**$306,020**	**$15,983,005**

COA 3

Personnel	Quantity									
	Mil	NGC	3rd Party	Military Personnel Cost	Contractor Cost ($711,171 pp)	3rd Party Contractor ($822,000 pp)	Military Training Cost	NGC Contractor Training Cost	3rd Party Training Cost	Total Cost
OIC/Mission Commander (O-4/5)	1			$170,105			$28,351			$198,455
AOIC/Mission Commander (O-3/4)	1			$173,655			$28,943			$202,598
Intelligence Specialist (4XE-5, 1XE6)	5			$343,317						$343,317
Air Vehicle Operator	0	1	2		$711,171	$1,644,000		$14,615	$48,077	$2,417,863
Mission Payload Operator	0	1	2		$711,171	$1,644,000		$14,615	$48,077	$2,417,863
Maintenance Manager	0	1	1		$711,171	$822,000		$14,615	$24,038	$1,571,824
Plane Captain/ Mechanic	0	1	0		$711,171			$14,615		$725,786
QA	0	1	1		$711,171	$822,000		$14,615	$24,038	$1,571,824
Mechanic	0	0	2			$1,644,000			$48,077	$1,692,077
Avionics	0	0	2			$1,644,000			$48,077	$1,692,077
Avionics/Plane Captain	0	1	1		$711,171	$822,000		$14,615	$24,038	$1,571,824
GCS Tech	0	1	1		$711,171	$822,000		$14,615	$24,038	$1,571,824
Logs & Records/Supply	0	1	1		$711,171	$822,000		$14,615	$24,038	$1,571,824
Total	**7**	**8**	**13**	**$687,077**	**$5,689,368**	**$10,686,000**	**$57,293**	**$116,920**	**$312,500**	**$17,549,158**

COA 2 AND 3 BREAKOUT OF MANNING COSTS BY TYPE

	None	Intel	QA	AM	AE	AZ
E-3	$54,451					
E-4	$58,842	$62,044		$60,922	$61,928	$61,851
E-5	$66,666	$66,666	$66,666	$66,666	$66,666	$66,666
E-6	$76,649	$76,649	$76,649	$87,899	$76,649	$76,649
E-7	$87,651					
E-8	$96,516					
E-9	$115,050					
		NA	NFO	SWO	Sub	
	None	1310	1320	1110	1120	
O-2	$101,641	$202,338	$163,878	$133,935	$162,042	
O-3	$118,893	$225,134	$201,674	$180,404	$189,363	
O-4	$140,865	173,665	$148,665	$160,738	$182,873	
O-5	$160,024	$170,104	$170,104	$176,987	$189,019	

OTHER DATA

$654,745	per man for total cost for entire contract.
$642,469	per man for pre-deployment and deployment (13.25 months)
$12,276	per man for training
	If you want to keep it at a cost of 1 year comparison:
$586,111	per man for 1 year plus the readiness pay.
$12,276	per man for training
$598,389	per man for training plus 1 year deployment.

Calculating 3rd Party Training Costs

A contract includes "Training for Internal Personnel". To determine the estimated training costs for contractors, the Cargo UAS manning contract was used in comparison. The Cargo UAS contract included a support detachment for 25 people. DCC used a contractor per support personnel cost of $25,000 per contractor.

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LIST OF REFERENCES

[i] http://www.navair.navy.mil/pma266/News_v2.html HSL-42 Det 'Motley Two' Poised to Make History 11/ 10 and USS Halyburton Homecoming at Mayport 8/1, Accessed August 2011 from PMA-266 News Page.

[ii] Northrop Grumman Proposal Number V-5295, Fire Scout ISR Task Force Proposal 22 August 2011. Prepared for PMA-266 by Northrop Grumman Systems Corporation, Aerospace Systems, Strike and Surveillance Systems, and Unmanned Systems. Point of Contact, Julie Beckwith, Contracts Representative, Julie.beckwith@ngc.com.

[iii] http://www.afcea.org/mission/intel/ISR.asp Accessed 05 July, 2011

[iv] http://www.navair.navy.mil/pma266/fs6.html Accessed 11 Aug 2011 via PMA-266 website photograph archives

[v] DCC used AC component numbers for costing, referencing HRCAT data.

[vi] Northrop Grumman Proposal Number V-5295, Fire Scout ISR Task Force Proposal 22 August 2011. Prepared for PMA-266 by Northrop Grumman Systems Corporation, Aerospace Systems, Strike and Surveillance Systems, and Unmanned Systems. Point of Contact, Julie Beckwith, Contracts Representative, Julie.beckwith@ngc.com. Summary Pages and Cost Charts.

[vii] Northrop Grumman Proposal Number V-5295, Fire Scout ISR Task Force Proposal 22 August 2011. Prepared for PMA-266 by Northrop Grumman Systems Corporation, Aerospace Systems, Strike and Surveillance Systems, and Unmanned Systems. Point of Contact, Julie Beckwith, Contracts Representative, Julie.beckwith@ngc.com. Introduction Pages – Outline and breakdown of Costs.